Contains No CBI

elf atochem

ELF ATOCHEM NORTH AMERICA, INC.
900 First Avenue, P.O. Box 1536
King of Prussia, PA 19406-0018

Tel: 215-337-6500

(A)

September 10, 1992

8EHQ-92-12641

88120010876

CERTIFIED MAIL

RETURN RECEIPT REQUESTED

Document Processing Center (TS-790)
Office of Toxic Substances
U.S. Environmental Protection Agency
401 M St., S.W.
Washington, D.C. 20460

Attn: Section 8(e) Coordinator (CAP Agreement)

RE: Report Submitted Pursuant to the TSCA Section 8(e) Compliance Audit Program

CAP Identification Number: 8ECAP-0026

Dear Sir/Madam:

Pursuant to the Toxic Substances Control Act (TSCA) Section 8(e) Compliance Audit Program and the Agreement for TSCA Section 8(e) Compliance Audit Program (CAP Agreement) executed by Elf Atochem North America Inc. (Atochem) and Environmental Protection Agency (EPA), Atochem is submitting the enclosed final report on the effects of tributyltin oxide on a marine alga to the EPA. This study does not involve effects in humans.

Nothing in this letter or the enclosed study is considered confidential business information of Atochem.

The enclosed study provides information on the chemical tributyltin oxide. Its exact chemical name is hexabutyldistannoxane and its CAS number is 56-35-9.

The title of the enclosed study is Effect of Tri-n-Butyltin Oxide (TBTO)-Alkyl Sourced on the Marine Alga Dunaliella tertiolecta. The following is a summary of the adverse effects observed in this study.

The 5-day algistatic concentration of tributyltin oxide for the marine alga Dunaliella tertiolecta, based on cell numbers, was 1.99 ppb.

mm
2/9/15

To our knowledge, Atochem has not previously submitted any TSCA Section 8(e) notices or premanufacture notifications on the subject chemical.

Further questions regarding this submission may be directed to me at 215 337-6892.

Sincerely,

C.H. Farr, PhD, DABT
Manager, Product Safety
and Toxicology

Enclosures

TR 91-444
PART 2 of

T-274

EG&G BIONOMICS

Marine Research Laboratory
EG&G BIONOMICS, 10307 GULF BEACH HIGHWAY, PENSACOLA, FLORIDA 32507 • TEL. (904) 492-0515

M&T CHEMICALS INC.
DEPT. OF SFTY. &
[illegible] AFFAIRS

AUG 16 1982

11 August 1982

Mr. Arthur Slesinger
M & T Chemicals, Inc.
General Offices
Rahway, NJ 07065

Dear Art:

Please find enclosed three copies of the results of an exposure of *Dunaliella tertiolecta* to TBTO-alkyl sourced. The results are a follow-on to the study conducted in December 1981 under Project R52, and expands the results reported in "Effect of tri-n-butyltin oxide (TBTO)-alkyl sourced on the marine alga *Dunaliella tertiolecta*," Bionomics Report Number BP-81-12-193.

To summarize the results, the algal cells recovered after 5-days of continuous exposure to the test material. The solvent, acetone, had an effect on cell growth and *in vivo* chlorophyll *a*, but the solvent effect does not change the fact that the cells recovered.

Please call if you have any questions or need additional information.

Sincerely,

Peter J. Shuba

Peter J. Shuba, Ph.D.
Technical Coordinator

PJS/blp

cc: Ward
Project file

CAS: 56 35 9

TABLE 1. Cell numbers x 10^4 per milliliter (determined by hemacytometer) during a 5-day continuous exposure of *Dunaliella tertiolecta* to TBTO-alkyl sourced. Values are means of three flasks. Percentage change is increase or decrease of cell numbers in exposed cultures as compared to the solvent control at day 5.

Nominal concentration (µg/ℓ;ppb)	Cell numbers x 10^4/mℓ		Percentage change
	Day 3	Day 5	Day 5
Control	58	156	+20
Solvent control	35	130	—
4.00	1	2	- 2

TABLE 2. *In vivo* chlorophyll *a* (expressed in relative fluorescence units determined with a Turner Model 111 fluorometer) during a 5-day continuous exposure of *Dunaliella tertiolecta* to TBTO-alkyl sourced. Values are means of three flasks. Percentage change is increase or decrease of relative fluorescence units in exposed cultures as compared to the solvent control at day 5.

Nominal concentration (µg/ℓ;ppb)	Relative fluorescence units					Percentage change
	Day 1	Day 2	Day 3	Day 4	Day 5	Day 5
Control	23	139	343	920	1,170	+54
Solvent control	17	45	83	393	760	—
4.00	6	13	8	6	14	+ 2

TABLE 3. *In vivo* chlorophyll *a* (expressed in relative fluorescence units determined with a Turner Model 111 fluorometer) during a 9-day recovery period which followed a 5-day exposure of *Dunaliella tertiolecta* to TBTO-alkyl sourced. Values are means of three flasks.

5-day exposure concentration (µg/ℓ;ppb)	Relative fluorescence units			Percentage change
	Day 3	Day 6	Day 9	Day 9
Control	78	783	1,410	-22
Solvent control	277	1,207	1,800	—
4.00	2	37	813	-54

FILED: CN 981-85

TR91-444
PART 1 OF 2

T-505

Effect of tri-n-butyltin oxide (TBTO)-alkyl sourced on the marine alga[illegible]

Toxicity Test Report

Submitted to

M & T CHEMICALS, INC.

General Offices

Rahway, New Jersey

Project Number R52

Report Number BP-81-12-193

EG&G Bionomics
Marine Research Laboratory
10307 Gulf Beach Highway
Pensacola, Florida 32507
December 1981

EG&G BIONOMICS
Marine Research Laboratory
10307 Gulf Beach Highway
Pensacola, Florida 32507

TOXICITY TEST SUMMARY SHEET

Client: M&T Chemicals, Inc.

Client Contact or Principal Investigator: Mr. Art Slesinger

Report date & number: December 1981; BP-81-12-193

Bionomics project number: R52 Study Director: T. A. Hollister

Test material: Tri-n-butyltin oxide (TBTO)-alkyl sourced

Description: A clear, colorless liquid

Date material received: 2 April 1981

Date of definitive test: 4-18 December 1981

Test condition: Medium: Marine Algal Assay Medium prepared with deionized water
Temperature: 20±1°C
Light intensity: Approximately 390 ft-c

Test procedure: A Method for Measuring Algal Toxicity and Its Application to the Safety Asessment of New Chemicals, Payne and Hall, 1979.

Test alga: *Dunaliella tertiolecta*

Solvent/carrier: Reagent grade acetone

Nominal concentrations: 0.06, 0.12, 0.25, 0.50, 1.00, and 2.00 micrograms (µg)/liter (ℓ)

Effect criterion: Change in cell numbers

5 day algistatic concentration (AC): 1.99 µg/ℓ by graphic interpolation
1.96 µg/ℓ by linear regression analysis

A phytotoxicity test was conducted at EG&G Bionomics Marine Research Laboratory (BMRL), Pensacola, Florida, to assess the effects of tri-n-butyltin oxide (TBTO) on the marine alga *Dunaliella tertiolecta*. The criteria for effect were the decrease of cell numbers in exposed cultures as compared to the solvent control. *In vivo* chlorophyll *a* concentrations were also determined to monitor the progress of the test.

All data related to this study are stored at BMRL.

MATERIAL AND METHODS

Test material

The sample, received at BMRL on 2 April 1981, was a clear, colorless liquid. All test concentrations are reported here as micrograms (µg) of whole material per liter (ℓ) of algal growth medium or parts per billion (ppb).

Test organism

The culture of *Dunaliella tertiolecta* was obtained from the U. S. Environmental Protection Agency's Environmental Research Laboratory, Corvallis, Oregon, and maintained in stock culture at BMRL.

Test methods

Test procedures were based on "A Method for Measuring Algal Toxicity and Its Application to the Safety Assessment of New Chemicals," by A. G. Payne and R. H. Hall (1979) and the U. S. Environmental Protection Agency (1974). Test containers were 125-mℓ flasks, each of which contained 50 mℓ of test medium. A primary stock solution of TBTO-alkyl sourced was prepared by adding a weighed amount of test material to acetone and other stock solutions were prepared by serial dilution of the primary stock.

A solvent control was also maintained to which was added 0.05 mℓ of acetone, the maximum volume added to the test containers.

The test was conducted 4-18 December 1981.

Statistical analysis

The algistatic concentration (AC) was determined by graphic interpolation of a plot of $\log_{10}$ of the ratio of cell numbers at the end of day 5 to the initial inoculum against $\log_{10}$ of the concentration of test material. The algistatic concentration was then selected as that concentration of test material that corresponded to a day five ratio of one. The AC was also determined by using a computer program for determining unknowns based on linear regression of standard curve data points.

RESULTS AND DISCUSSION

After 5 days of exposure, the percentage decrease of cell numbers in exposed cultures as compared to the solvent control was from 3% in 0.12 ppb to 100% in 2.0 ppb of the test material (Table 1; Figure 1).

Measurements of *in vivo* chlorophyll *a* demonstrated a growth-concentration response similar to the observed effect based on cell numbers. After 5 days of exposure, the percentage decrease of relative fluorescence units was from -2% in cultures exposed to 0.5 ppb to 100% in cultures exposed to 2.0 ppb of the test material (Table 2; Figure 2).

The 5-day algistatic concentration, based on cell numbers, was 1.99 ppb based on graphic interpolation and 1.96 based on linear regression analysis (Table 3; Figure 3).

Based on cell numbers and *in vivo* chlorophyll *a*, the growth of cultures previously exposed to 2.0 ppb of test material was similar to the growth of the solvent control during the 9-day recovery period

in test material-free medium, indicating no apparent residual effects (Tables 4 and 5; Figures 1 and 2).

REFERENCES

Payne, A. G. and R. H. Hall. 1979. "A Method for Measuring Algal Toxicity and Its Application to the Safety Assessment of New Chemicals", Aquatic Toxicology, ASTM STP 667, pp. 171-180.

U. S. Environmental Protection Agency. 1974. Marine Algal Assay Procedure: Bottle Test. EPA-660/3-75-006. Environmental Research Laboratory, Corvallis, OR. 43 pp.

TABLE 1. Cell numbers x 10^4 per milliliter (determined by hemacytometer) during a 5-day continuous exposure of *Dunaliella tertiolecta* to TBTO-alkyl sourced. Values are means of three flasks. Standard deviations (±1 S.D.) are in parentheses. Percentage change is increase or decrease of cell numbers in exposed cultures as compared to the solvent control at day 5.

Nominal concentration (µg/ℓ;ppb)	Cell numbers x 10^4/mℓ Day 3	Cell numbers x 10^4/mℓ Day 5	Percentage Change Day 5
Control	64 (5)	163 (30)	+13
Solvent control	67 (5)	144 (24)	---
0.06	66 (5)	156 (22)	+8
0.12	62 (6)	139 (17)	-3
0.25	60 (5)	155 (18)	+8
0.50	57 (7)	131 (19)	-9
1.00	46 (4)	80 (16)	-44
2.00	0.4 (0.2)	0.0 (0.0)	-100

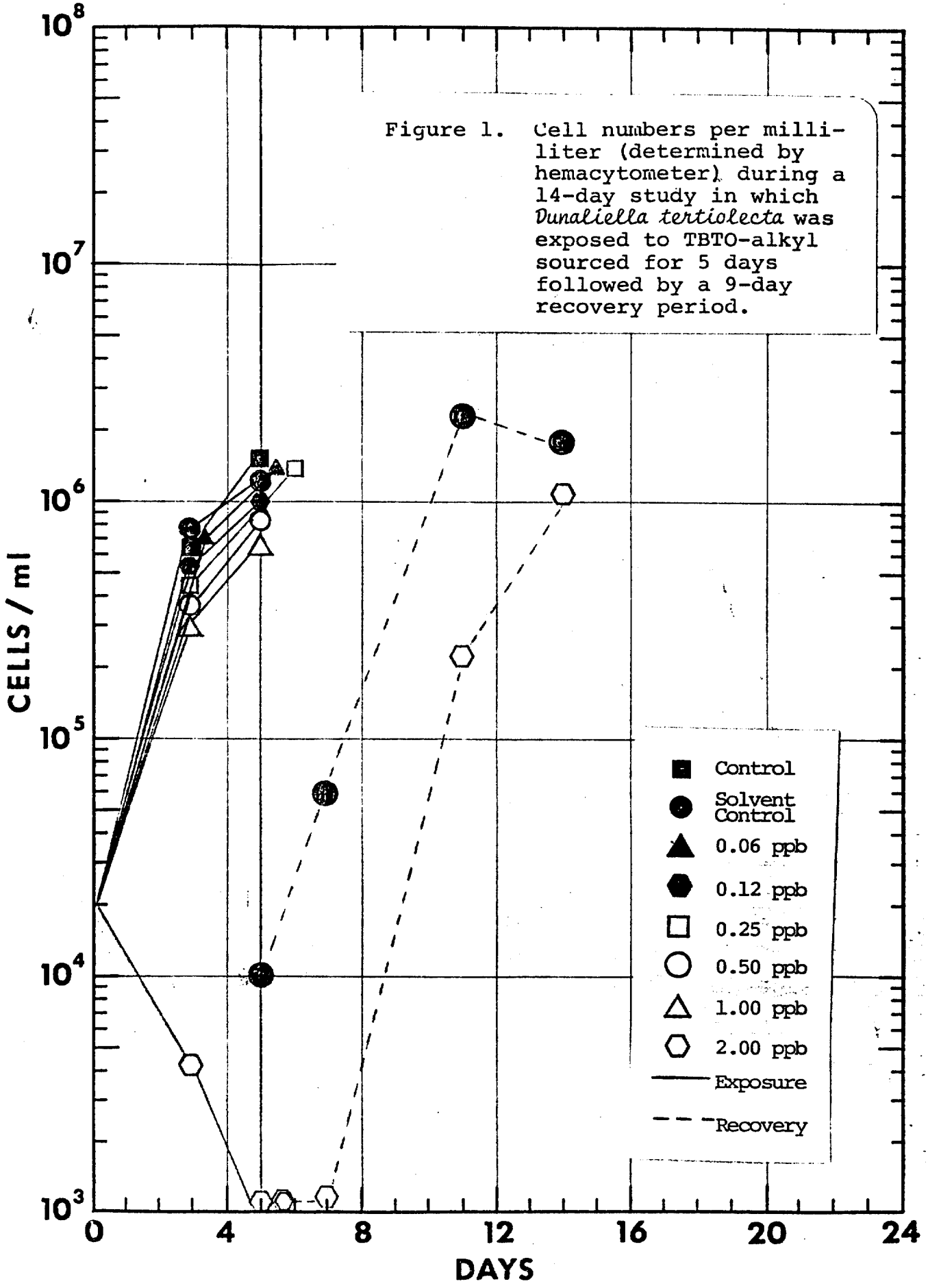

Figure 1. Cell numbers per milliliter (determined by hemacytometer) during a 14-day study in which *Dunaliella tertiolecta* was exposed to TBTO-alkyl sourced for 5 days followed by a 9-day recovery period.

TABLE 2. *In vivo* chlorophyll *a* (expressed in relative fluorescence units determined with a Turner Model 111 fluorometer) during a 5-day continuous exposure of *Dunaliella tertiolecta* to TBTO-alkyl sourced. Values are means of three flasks. Standard deviations (±1 S.D.) are in parentheses. Percentage change is increase or decrease of relative fluorescence units in exposed cultures as compared to the solvent control at day 5.

Nominal concentration (µg/ℓ;ppb)	Relative fluorescence units					Percentage change
	Day 1	Day 2	Day 3	Day 4	Day 5	Day 5
Control	129 (7)	711 (26)	1,867 (153)	2,620 (367)	2,600 (211)	+4
Solvent control	132 (7)	739 (59)	1,867 (189)	2,220 (120)	2,500 (125)	---
0.06	131 (7)	700 (50)	1,867 (202)	2,160 (208)	2,680 (151)	+7
0.12	124 (5)	728 (35)	1,783 (161)	1,980 (159)	2,560 (151)	+2
0.25	111 (9)	772 (25)	1,750 (132)	2,020 (302)	2,360 (193)	-6
0.50	111 (2)	539 (42)	1,667 (126)	1,900 (227)	2,440 (250)	-2
1.00	102 (4)	245 (7)	900 (100)	1,200 (262)	1,360 (151)	-46
2.00	67 (4)	6 (0.6)	4 (1)	2 (0)	0 (0)	-100

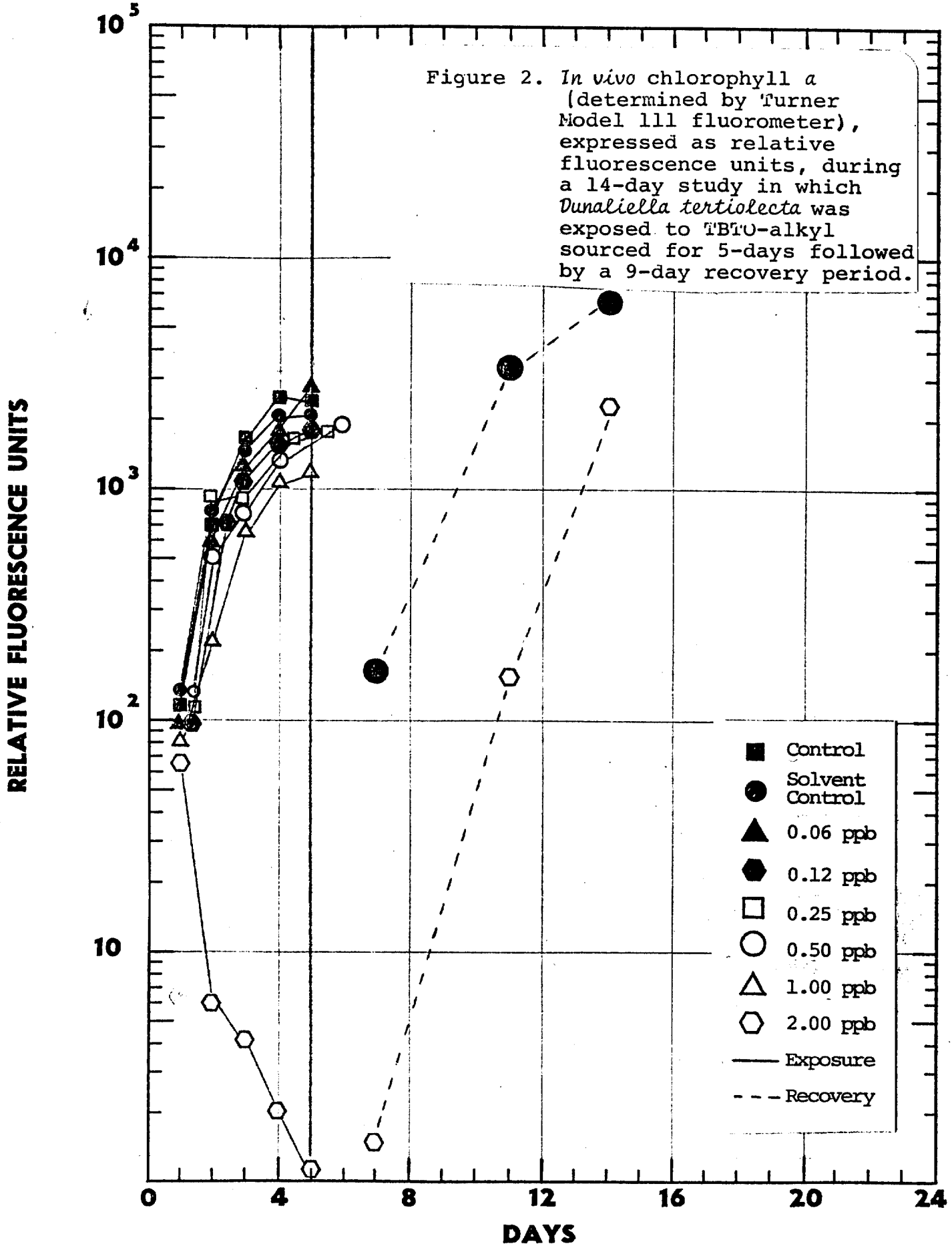

Figure 2. *In vivo* chlorophyll *a* (determined by Turner Model 111 fluorometer), expressed as relative fluorescence units, during a 14-day study in which *Dunaliella tertiolecta* was exposed to TBTO-alkyl sourced for 5-days followed by a 9-day recovery period.

TABLE 3. Comparison of cells per milliliter present after 5 days exposure of *Dunaliella tertiolecta* to TBTO-alkyl sourced and the initial inoculum (cell numbers at day 5 ÷ 2.0 X 10^4). A value of 1 would be considered algistatic.

Nominal concentration (µg/ℓ;ppb)	Cell numbers at day 5÷initial inoculum
0.06	78
0.12	70
0.25	78
0.50	66
1.00	40
2.00	0

Figure 3. Plot of $\log_{10}$ of cell numbers at day 5 ÷ the initial inoculum (2×10^4 cell per mℓ) versus $\log_{10}$ of the concentration of TBTO-alkyl sourced.

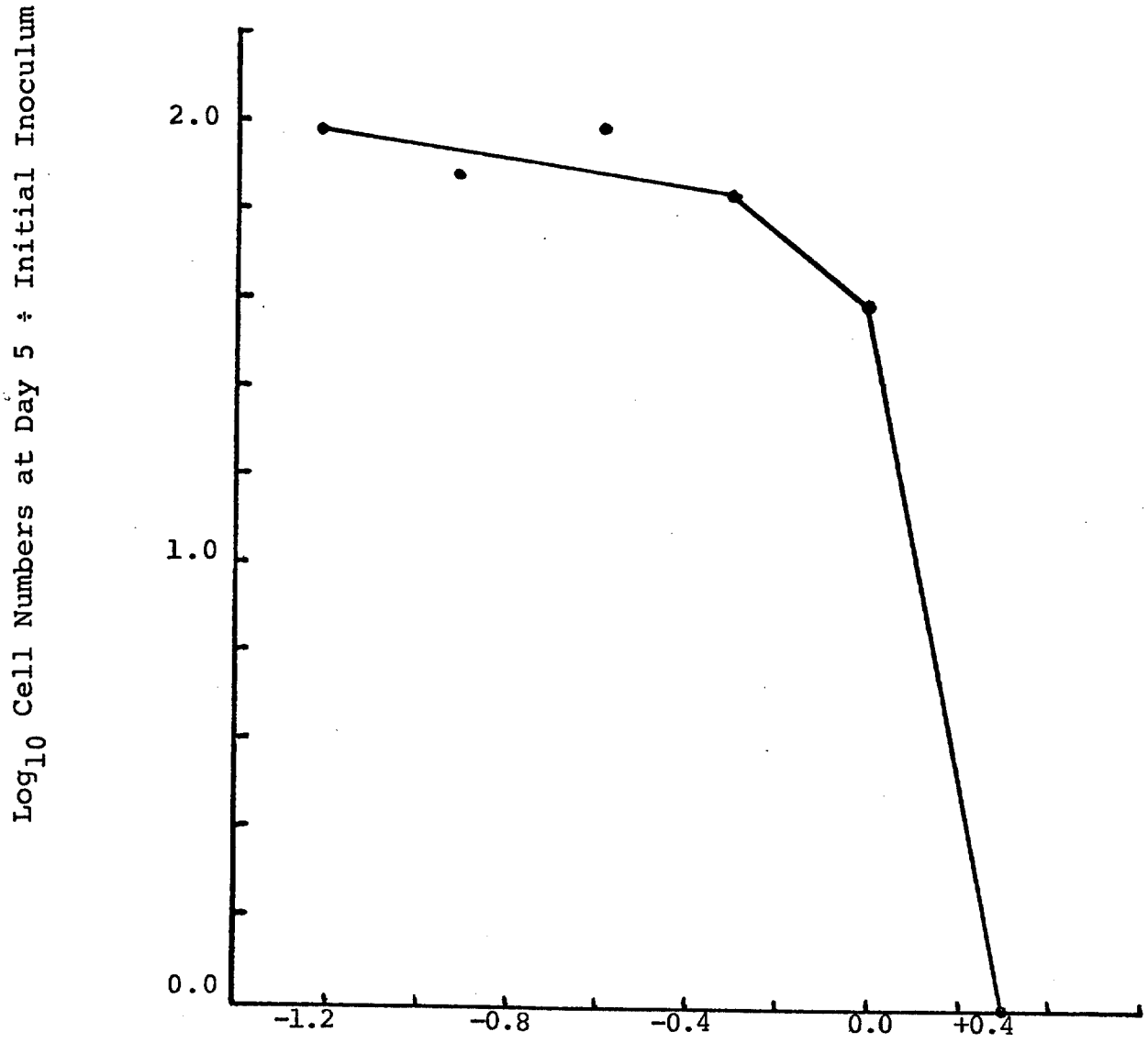

TABLE 4. Cell numbers x 10^4 per millilter (determined by hemacytometer) during a 9-day recovery period which followed a 5-day exposure of *Dunaliella tertiolecta* to TBTO-alkyl sourced. Values are means of three flasks. Standard deviations (±1 S.D.) are in parentheses.

5-day exposure concentration (µg/ℓ;ppb)	Cell numbers x 10^4/mℓ					
	Day 0	Day 2		Day 6		Day 9	
Solvent control	1.0	6	(1)	240	(12)	182	(12)
2.00	0.0	0	(0)	22	(3)	106	(8)

TABLE 5. *In vivo* chlorophyll *a* (expressed in relative fluorescence units determined with a Turner Model 111 fluorometer) during a 9-day recovery period which followed a 5-day exposure of *Dunaliella tertiolecta* to TBTO-alkyl sourced. Values are means of three flasks. Standard deviations (±1 S.D.) are in parentheses.

5-day exposure concentration (µg/ℓ;ppb)	Relative fluorescence units					
	Day 2		Day 6		Day 9	
Solvent control	181	(3)	3,183	(126)	6,133	(404)
2.00	1	(0)	177	(25)	2,150	(200)

PREPARED BY: Terry A. Hollister

Terry A. Hollister 14 January 1982
Study Director Date

AUDITED BY: James A. Radford

James A Radford 13 January 1982
Quality Assurance Unit Date

Raw data audit: 12 January 1982

Preliminary report audit: 13 January 1982

Final report audit: 13 January 1982

REVIEWED AND APPROVED BY: Peter J. Shuba, Ph.D.

Peter J. Shuba 14 Jan '82
Technical Coordinator Date

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, D.C. 20460

C. H. Farr, PhD, DABT
Manager, Product Safety and Toxicology
Atochem North America, Inc.
900 First Avenue
P.O. Box 1536
King of Prussia, Pennsylvania 19406-0018

OFFICE OF
PREVENTION, PESTICIDES AND
TOXIC SUBST...CES

MAR 30 1995

EPA acknowledges the receipt of information submitted by your organization under Section 8(e) of the Toxic Substances Control Act (TSCA). For your reference, copies of the first page(s) of your submission(s) are enclosed and display the TSCA §8(e) Document Control Number (e.g., 8EHQ-00-0000) assigned by EPA to your submission(s). Please cite the assigned 8(e) number when submitting follow-up or supplemental information and refer to the reverse side of this page for "EPA Information Requests".

All TSCA 8(e) submissions are placed in the public files unless confidentiality is claimed according to the procedures outlined in Part X of EPA's TSCA §8(e) policy statement (43 FR 11110, March 16, 1978). Confidential submissions received pursuant to the TSCA §8(e) Compliance Audit Program (CAP) should already contain information supporting confidentiality claims. This information is required and should be submitted if not done so previously. To substantiate claims, submit responses to the questions in the enclosure "Support Information for Confidentiality Claims". This same enclosure is used to support confidentiality claims for non-CAP submissions.

Please address any further correspondence with the Agency related to this TSCA 8(e) submission to:

Document Processing Center (7407)
Attn: TSCA Section 8(e) Coordinator
Office of Pollution Prevention and Toxics
U.S. Environmental Protection Agency
Washington, D.C. 20460-0001

EPA looks forward to continued cooperation with your organization in its ongoing efforts to evaluate and manage potential risks posed by chemicals to health and the environment.

Sincerely,

Terry R. O'Bryan

Terry R. O'Bryan
Risk Analysis Branch

Enclosure

12691A

Triage of 8(e) Submissions

Date sent to triage: MAY 10 1995

NON-CAP CAP

Submission number: 12691A

TSCA Inventory: Y N D

Study type (circle appropriate):

Group 1 - Dick Clements (1 copy total)

ECO AQUATO

Group 2 - Ernie Falke (1 copy total)

ATOX SBTOX SEN w/NEUR

Group 3 - Elizabeth Margosches (1 copy each)

STOX CTOX EPI RTOX GTOX

STOX/ONCO CTOX/ONCO IMMUNO CYTO NEUR

Other (FATE, EXPO, MET, etc.): _____

Notes:

THIS IS THE ORIGINAL 8(e) SUBMISSION; PLEASE REFILE AFTER TRIAGE DATABASE ENTRY

For Contractor Use Only

entire document: 0 1 2 **pages** 12 **pages** 12, TABS

Notes:

Contractor reviewer : PDL **Date:** 2/22/95

CECATS\TRIAGE TRACKING DBASE ENTRY FORM

CECATS DATA:
Submission # 8EHQ- 1092 - 12691 SEQ. A

TYPE: (INT.) SUPP FLWP

SUBMITTER NAME: Elf Atochem North America, Inc.

INFORMATION REQUESTED: FLWP DATE:
0501 NO INFO REQUESTED
0502 INFO REQUESTED (TECH)
0503 INFO REQUESTED (VOL ACTIONS)
0504 INFO REQUESTED (REPORTING RATIONALE)

DISPOSITION:
(0639) REFER TO CHEMICAL SCREENING
(0678) CAP NOTICE

VOLUNTARY ACTIONS:
(0401) NO ACTION REPORTED
0402 STUDIES PLANNED/UNDERWAY
0403 NOTIFICATION OF WORKERS/USERS
0404 LABEL/MSDS CHANGES
0405 PROCESS/HANDLING CHANGES
0406 APP/USE DISCONTINUED
0407 PRODUCTION DISCONTINUED
0408 CONFIDENTIAL

SUB. DATE: 09/10/92 OTS DATE: 10/06/92 CSRAD DATE: 02/09/95

CHEMICAL NAME: TBTO

CAS#: 56-35-9

INFORMATION TYPE:		P F C
0201	ONCO (HUMAN)	01 02 04
0202	ONCO (ANIMAL)	01 02 04
0203	CELL TRANS (IN VITRO)	01 02 04
0204	MUTA (IN VITRO)	01 02 04
0205	MUTA (IN VIVO)	01 02 04
0206	REPRO/TERATO (HUMAN)	01 02 04
0207	REPRO/TERATO (ANIMAL)	01 02 04
0208	NEURO (HUMAN)	01 02 04
0209	NEURO (ANIMAL)	01 02 04
0210	ACUTE TOX. (HUMAN)	01 02 04
0211	CHR. TOX. (HUMAN)	01 02 04
0212	ACUTE TOX. (ANIMAL)	01 02 04
0213	SUB ACUTE TOX (ANIMAL)	01 02 04
0214	SUB CHRONIC TOX (ANIMAL)	01 02 04
0215	CHRONIC TOX (ANIMAL)	01 02 04

INFORMATION TYPE:		P F C
0216	EPI/CLIN	01 02 04
0217	HUMAN EXPOS (PROD CONTAM)	01 02 04
0218	HUMAN EXPOS (ACCIDENTAL)	01 02 04
0219	HUMAN EXPOS (MONITORING)	01 02 04
(0220)	ECO/AQUA TOX	01 02 04
0221	ENV. OCCC/REL/FATE	01 02 04
0222	EMER INCI OF ENV CONTAM	01 02 04
0223	RESPONSE REQEST DELAY	01 02 04
0224	PROD/COMP/CHEM ID	01 02 04
0225	REPORTING RATIONALE	01 02 04
0226	CONFIDENTIAL	01 02 04
0227	ALLERG (HUMAN)	01 02 04
0228	ALLERG (ANIMAL)	01 02 04
0239	METAB/PHARMACO (ANIMAL)	01 02 04
0240	METAB/PHARMACO (HUMAN)	01 02 04

INFORMATION TYPE:		P F C
0241	IMMUNO (ANIMAL)	01 02 04
0242	IMMUNO (HUMAN)	01 02 04
(0243)	CHEM/PHYS PROP	01 02 04
0244	CLASTO (IN VITRO)	01 02 04
0245	CLASTO (ANIMAL)	01 02 04
0246	CLASTO (HUMAN)	01 02 04
0247	DNA DAM/REPAIR	01 02 04
0248	PROD/USE/PROC	01 02 04
0251	MSDS	01 02 04
0299	OTHER	01 02 04

TRIAGE DATA:

NON-CBI INVENTORY: (YES) NO IN TERMINI

CAS SR

ONGOING REVIEW: YES (DROP/REFER) NO (CONTINUE) REFER

SPECIES: Alga

TOXICOLOGICAL CONCERN: LOW MED HIGH

USE:

PRODUCTION:

COMMENTS: